

WHAT IS CLAIMED IS:

- 1           1.       An external infusion device for infusion of a fluid into a body from a  
2 reservoir, the external infusion device comprising:  
3           a drive system to operatively couple with a reservoir to infuse a fluid into a body;  
4           a housing adapted for use on an exterior of the body, wherein the housing is sized  
5 to contain at least a portion of a reservoir, wherein the drive mechanism is at least  
6 partially contained within the housing, wherein the drive mechanism operatively couples  
7 with the at least a portion of a reservoir within the housing, and wherein the housing is  
8 sized to be carried by a user without significant restriction on mobility;  
9           electronic control circuitry coupled to the drive system to control infusion of the  
10 fluid into the body;  
11           wherein the housing has at least one vent port that permits the passage of air into  
12 and out of the housing and inhibits the passage of liquids into the housing through the at  
13 least one vent port.
2.       An external infusion device according to claim 1, wherein the at least one  
vent port further includes a hydrophobic material that permits the passage of air into and  
out of the housing and inhibits the passage of liquids into the housing through the at least  
one vent port.
3.       An external infusion device according to claim 2, wherein the hydrophobic  
material is formed from PTFE.
4.       An external infusion device according to claim 2, wherein the hydrophobic  
material is formed as sheet.

5. An external infusion device according to claim 4, wherein the sheet of hydrophobic material is attached to the housing using adhesives to cover the at least one vent port.

6. An external infusion device according to claim 4, wherein the sheet of hydrophobic material is attached to the housing using sonic welding to cover the at least one vent port.

7. An external infusion device according to claim 4, wherein the sheet of hydrophobic material is heat welded to the housing to cover the at least one vent port.

8. An external infusion device according to claim 4, wherein the sheet of hydrophobic material is a label.

9. An external infusion device according to claim 2, wherein the hydrophobic material is pressed into the housing of the external infusion device.

10. An external infusion device according to claim 9, wherein the hydrophobic material is pressed into a cavity in the housing that forms the at least one vent port.

11. An external infusion device according to claim 10, wherein the hydrophobic material is molded to fit the cavity in the housing.

12. An external infusion device according to claim 2, wherein the hydrophobic material resists the passage of water.

13. An external infusion device according to claim 2, wherein the external infusion device is configured to infuse insulin.

14. An external infusion device according to claim 1, wherein the housing and at least one vent port provide a water resistant structure that provides the user with the ability to participate in water sports.

15. An external infusion device according to claim 1, wherein the at least one vent port allows the air pressure within the housing to equalize with the air pressure outside of the housing.

16. An external infusion device for infusion of a fluid into a body from a reservoir, the external infusion device comprising:  
drive system means to operatively couple with a reservoir for infusing a fluid into a body;  
housing means adapted for use on an exterior of the body, wherein the housing means is sized to contain at least a portion of a reservoir, wherein the drive mechanism means is at least partially contained within the housing means, wherein the drive mechanism means operatively couples with the at least a portion of a reservoir within the housing means, and wherein the housing means is sized to be carried by a user without significant restriction on mobility;  
electronic control circuitry means coupled to the drive system for controlling infusion of the fluid into the body;  
wherein the housing means has at least one vent port means for permitting the passage of air into and out of the housing means and inhibiting the passage of liquids into the housing means through the at least one vent port.

17. An external infusion device according to claim 16, wherein the at least one vent port means further includes hydrophobic material means for permitting the passage of air into and out of the housing means and inhibiting the passage of liquids into the housing means through the at least one vent port means.

18. An external infusion device according to claim 17, wherein the hydrophobic material means is formed from PTFE.
19. An external infusion device according to claim 17, wherein the hydrophobic material means is formed as sheet.
20. An external infusion device according to claim 19, wherein the sheet of hydrophobic material means is attached to the housing means using adhesives to cover the at least one vent port means.
21. An external infusion device according to claim 19, wherein the sheet of hydrophobic material means is attached to the housing means using sonic welding to cover the at least one vent port means.
22. An external infusion device according to claim 19, wherein the sheet of hydrophobic material means is heat welded to the housing means to cover the at least one vent port means.
23. An external infusion device according to claim 19, wherein the sheet of hydrophobic material means is a label.
24. An external infusion device according to claim 17, wherein the hydrophobic material means is pressed into the housing means of the external infusion device.
25. An external infusion device according to claim 24, wherein the hydrophobic material means is pressed into a cavity in the housing means that forms the at least one vent port means.

26. An external infusion device according to claim 25, wherein the hydrophobic material means is molded to fit the cavity in the housing means.
27. An external infusion device according to claim 17, wherein the hydrophobic material means resists the passage of water.
28. An external infusion device according to claim 17, wherein the external infusion device is configured to infuse insulin.
29. An external infusion device according to claim 16, wherein the housing means and at least one vent port means provide a water resistant structure that provides the user with the ability to participate in water sports.
30. An external infusion device according to claim 16, wherein the at least one vent port means allows the air pressure within the housing means to equalize with the air pressure outside of the housing means.

1           31.     A method of equalizing pressure in an external infusion device for  
2 infusion of a fluid into a body from a reservoir, the external infusion device having a  
3 drive system to operatively couple with a reservoir to infuse a fluid into a body, a housing  
4 adapted for use on an exterior of the body, wherein the housing is sized to contain at least  
5 a portion of a reservoir, wherein the drive mechanism is at least partially contained within  
6 the housing, wherein the drive mechanism operatively couples with the at least a portion  
7 of a reservoir within the housing, and wherein the housing is sized to be carried by a user  
8 without significant restriction on mobility, and electronic control circuitry coupled to the  
9 drive system to control infusion of the fluid into the body, the method comprising steps  
10 of:

11                 providing at least one vent port in the housing that permits the passage of air into  
12 and out of the housing and inhibits the passage of liquids into the housing through the at  
13 least one vent port.

14

              32.     A method according to claim 31, further comprising the step of using a  
hydrophobic material with the at least one vent port to permit the passage of air into and  
out of the housing and inhibit the passage of liquids into the housing through the at least  
one vent port.

              33.     A method according to claim 32, further comprising the step of forming  
the hydrophobic material from PTFE.

              34.     A method according to claim 32, further comprising the step of forming  
the hydrophobic material as sheet.

              35.     A method according to claim 34, further comprising the step of attaching  
the sheet of hydrophobic material to the housing using adhesives to cover the at least one  
vent port.

36. A method according to claim 34, further comprising the step of attaching the sheet of hydrophobic material to the housing using sonic welding to cover the at least one vent port.

37. A method according to claim 34, further comprising the step of heat welding the sheet of hydrophobic material to the housing to cover the at least one vent port.

38. A method according to claim 34, further comprising the step of forming the sheet of hydrophobic material as a label.

39. A method according to claim 32, further comprising the step of pressing the hydrophobic material into the housing of the external infusion device.

40. A method according to claim 39, further comprising the step of forming a cavity as the at least one vent port in the housing and pressing the hydrophobic material into the cavity in the housing that forms the at least one vent port.

41. A method according to claim 40, further comprising the step of molding the hydrophobic material to fit the cavity in the housing.

42. A method according to claim 32, further comprising the step of using the hydrophobic material to resist the passage of water.

43. A method according to claim 32, further comprising the step of configuring the external infusion device to infuse insulin.

44. A method according to claim 31, further comprising the step of forming the housing and at least one vent port to provide a water resistant structure that provides the user with the ability to participate in water sports.

45. A method according to claim 31, further comprising the step of allowing the at least one vent port to equalize the air pressure within the housing with the air pressure outside of the housing.